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1. Piezoelectric actuator (1) comprising

- a stack of a plurality of individual piezoelectric  
5 actuator elements (2, 2', 2''), which are disposed  
between inner electrodes (3, 3', 3'') and which contract  
or expand in a main oscillation direction (10) in  
dependence on an applied electric voltage,

- a first metallization strip (4) and a second  
10 metallization strip (5), the inner electrodes (3, 3',  
3'') being respectively connected in an alternating  
manner to the first or second metallization strip (4)  
(5),

- a first outer electrode (6) and a second outer electrode  
15 (7) which are respectively fixed to the first or the  
second metallization strip (4) (5) in order to  
electrically contact the piezoelectric actuator (1) and

- a first connection element (8) and a second connection  
20 element (9) for externally contacting the piezoelectric  
actuator (1) which are respectively connected to the  
first or the second outer electrode (6) (7),

whereby

- the outer electrodes (6) (7) comprise at least one region  
which is embodied in such a way that it compensates  
25 length variations of the piezoelectric actuator (1) in  
the main oscillation direction (10) as a result of its  
design and arrangement by means of elastic deformation  
exclusively inside a plane which is parallel to the main  
oscillation direction (10), and

30 - the outer electrodes (6) (7) have a comb-shaped profile  
with contact teeth (11) (11') to contact the  
metallization strips (4) (5)

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the outer electrodes (6) (7) have a wave-form conductor plate (16) (16') from which the contact teeth (11) lead away.

2. Piezoelectric actuator (1) according to Claim 1,

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the wave-form conductor plate tapers along its principal axis (18) (18').

3. Piezoelectric actuator (1) according to Claim 1 or 2,

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the contact teeth (11) (11') run parallel to each other and are all the same length at a first end (12) (12') and the contact teeth (11) (11') at this end (12) (12') are soldered to the metallization strips (4) (5) in order to create an  
15 electrical contact.

4. Piezoelectric actuator (1) according to one of Claims 1 to 3,

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20 the outer electrodes (6) (7) are curved at an angle  $\alpha < 90^\circ$  in order to be fixed to the piezoelectric actuator (1), parallel to the first, straight end region (12) (12') of the contact teeth (11) (11').

25 5. Piezoelectric actuator (1) according to one of Claims 1 to 4,

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the outer electrodes (6) (7) on the piezoelectric actuator (1) are fixed mechanically by means of an adhesive (14) to the  
30 piezoelectric actuator (1) and the contact teeth (11) (11') are left open when the adhesive (14) is applied for soldering to the metallization strips (4) (5).

6. Piezoelectric actuator (1) according to Claim 5,

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characterized in that  
the adhesive (14) is designed and arranged in such a way that  
electric insulation is ensured between the outer electrodes  
(6) (7) on the one hand and the piezoelectric actuator  
elements (2, 2', 2'') and the inner electrodes (3, 3', 3'') on  
the other hand.

7. Piezoelectric actuator (1) according to Claim 5 or 6,  
characterized in that  
the thickness of the layer of adhesive (14) between the outer  
electrodes (6) (7) on the one hand and the piezoelectric  
actuator elements (2, 2', 2'') and the inner electrodes (3,  
3', 3'') on the other hand is determined by the admixture of  
particles of a preset size.

8. Piezoelectric actuator (1) according to one of Claims 5 to  
7,  
characterized in that  
the adhesive (14) is fuel-resistant.

9. Piezoelectric actuator (1) according to one of the  
preceding claims,  
characterized in that  
the piezoelectric actuator (1) is completely covered with  
adhesive (14).

10. Piezoelectric actuator (1) according to one of the  
preceding claims,  
characterized in that  
the outer electrodes (6) (7) are made from a bronze alloy  
using etching.